

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 25-10-2011		2. REPORT TYPE FINAL		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Maquiladoras and National Security: Design Theory as a Guide				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Stanley Joseph Rapiey Paper Advisor (if Any): Colonel Justin Speegle, USAF				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Joint Military Operations Department Naval War College 686 Cushing Road Newport, RI 02841-1207				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution Statement: Approved for public release; Distribution Unlimited					
13. SUPPLEMENTARY NOTES A paper submitted to the Naval War College faculty in partial satisfaction of the requirements of the Joint Military Operations Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.					
14. ABSTRACT The Mexican maquiladora industry is rapidly losing market share to Asian competitors that dramatically undercut them in terms of labor cost. The decline of these assembly-for-export factories will result in instability along the U.S.-Mexico border and will prove to be a serious national security issue for the United States. This paper leverages Design theory to frame the problems surrounding Mexico's maquiladora industry in order to develop an understanding of this complex adaptive system. It examines the wide range of actors involved in the system, focusing on their goals, motivations and conflicting tendencies. Finally, the paper recommends courses of action for U.S. and Mexican leaders that will mitigate the resulting instability in the Mexican northern border states.					
15. SUBJECT TERMS MEXICO, EXPORT, MAQUILADORAS, COMPETITION, BORDER, SECURITY, STABILITY, DESIGN					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 23	19a. NAME OF RESPONSIBLE PERSON Chairman, JMO Dept
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code) 401-841-3556

**NAVAL WAR COLLEGE
Newport, R.I.**

Maquiladoras and National Security: Design Theory as a Guide

by

Stanley Joseph Rapiey

Department of Defense Civilian

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

25 October, 2011

Abstract

The Mexican maquiladora industry is rapidly losing market share to Asian competitors that dramatically undercut them in terms of labor cost. The decline of these assembly-for-export factories will result in instability along the U.S.-Mexico border and will prove to be a serious national security issue for the United States. This paper leverages Design theory to frame the problems surrounding Mexico's maquiladora industry in order to develop an understanding of this complex adaptive system. It examines the wide range of actors involved in the system, focusing on their goals, motivations and conflicting tendencies. Finally, the paper recommends courses of action for U.S. and Mexican leaders that will mitigate the resulting instability in the Mexican northern border states.

The economic stability of Mexico will always be a national security priority for the United States. The two nations share a border of nearly 2,000 miles, and trade between them is worth billions of dollars. To take advantage of this relationship, the Mexican government created a series of customs and trade policies specifically designed to enhance its economic ties to the U.S. For decades, such policies greatly benefited Mexico's maquiladoras, factories that import raw materials, rapidly combine them into finished products, and export them to the American market. Unfortunately for Mexico, the strong advantages in low-cost labor and speedy delivery are gradually being eroded by similar programs in China and Southeast Asia. As U.S. companies look to Asia for more profitable business relationships, the Mexican government has done little to alter its customs and trade policies in response. A severe economic blow to the maquiladoras along the U.S. border would have dramatic effects on the stability of the area, affecting both Mexican and American national security interests. The governments of Mexico and the United States should therefore take preemptive measures to mitigate the instability that is arising as the maquiladoras lose their viability under new global economic pressures. These measures include altering customs and trade policies, providing economic incentives in order to transform the Mexican export industry, and creating labor opportunities for Mexicans within the United States. In order to support this thesis, the following paper will leverage Design Theory to examine the current situation in the Mexican maquiladora industry, identify problems in terms of potential impacts to U.S. national security, and propose possible courses of action for both American and Mexican decision-makers.

The issues surrounding the potential threats to U.S. national security as a result of changes in the Mexican economy are complex and difficult to define. In such an ill-

structured problem, it is difficult to establish boundaries because it involves a large number of actors working toward a variety of different goals. In addition, there are disagreements among informed observers on the actual significance of certain events and whether trends can be considered positive or negative. A complex, adaptive system is “a collection of individual agents who have the freedom to act in ways that are not always predictable, and whose actions are interconnected such that one agent’s actions change the context for other agents.”¹ Many economic models are considered complex adaptive systems because associated actions are non-linear and change over time, based on continuing interactions and conditions.² The use of Design Theory to examine such a system is appropriate because the problem can neither be viewed as a familiar pattern, nor solved with a previously-identified process.³ As a problem-solving mechanism, Design involves the development of three frames: the Environmental Frame, the Problem Frame, and the Solution Frame.

The Environmental Frame is a “description that captures the history, culture, current state, and future goals of relevant actors in the operational environment.”⁴ In this frame, there is also a discussion of the desired end state, a “sought-after future state” that will become the ultimate goal and driver for the development of necessary tasks.⁵ Although difficult to establish boundaries in a complex adaptive system, some initial effort must be made to enable a manageable discussion. For the purposes of this paper, the definition of “maquiladora” is a factory located in Mexico that imports raw materials at an extremely low

¹ Chang Riu-Yu and Yan Luo, “Analysis of Decision-making Behavior Based on Complex Adaptive System,” World Scientific and Engineering Academy and Society, WSEAS Journal, issue 6, volume 7, 2008, pg. 718

² Sandia National Laboratories, CASos (Complex Adaptive Systems of Systems) Engineering Initiative, CASoS homepage, <http://www.sandia.gov/CasosEngineering/index.html>

³ William Hartig, “An Introduction to Design (JMO-7)”, Joint Maritime Operations Syllabus, College of Naval Warfare, Naval Command College, August 2011, pg. 30

⁴ FM 5-0 The Operations Process, Headquarters Department of the Army, March 2010, section 3-8 (pg. 3-2)

⁵ IBID section 3-9 (pg. 3-2)

or duty-free level, then “re-exports” the finished product immediately to avoid export tariffs.⁶ In order to further define the examined system, this paper will focus on maquiladoras located in the northern Mexican States along the U.S. border. The relevant actors associated with this system are Mexican and foreign corporations (to include their owners and employees), and the Mexican and U.S. governments. The discussion will focus on the current timeframe and the near future, with references to events within the last decade (since 2001).

The Mexican maquiladora industry was created in 1964 when the Mexican government established the Border Industrialization Program. Previously, under the Bracero program, large numbers of Mexican workers were permitted to enter the United States in order to provide cheap and temporary labor, mostly in agriculture. When the Bracero program ended in 1964, the Mexican government developed the Border Industrialization Program in order to quickly create new jobs.⁷ The associated agreement between the U.S. and Mexico was called the “Twin Plant Agreement,” because American companies would often build counterpart facilities on the U.S. side of the border to supply components to the maquiladoras. The Mexican government concluded a series of trade agreements with the United States and altered its customs laws in order to make these factories more attractive to U.S. companies. These rules allowed for the importation of raw materials with little or no tax, provided that they were quickly assembled into a final product and immediately exported. For this reason, proximity to the United States was essential. The maquiladoras ability to provide as-needed, “just in time” shipping was a powerful selling point.⁸ It also

⁶ Bureau of Labor Statistics, “An Overview of the Maquiladora Program,” United States Department of Labor, 1994.

⁷ Paul Espinosa (producer), “The Border,” Companion website to the PBS documentary series, 1999 <http://www.pbs.org/kpbs/theborder/history/index.html>

⁸ Daniel H. Rosen, “How China is Eating Mexico’s Lunch,” *The International Economy*, Spring 2003, pg. 24

allowed for the hiring of large numbers of unskilled employees, because the work involved simple assembly. This system was beneficial to both the United States and Mexican economies. It reduced labor and tariff costs for American companies and provided employment for large numbers of workers in Mexican factories. Foreign companies also take advantage of this system. Companies such as BMW, Sony and Matsushita have all previously invested in Mexican maquiladoras designed to assemble products for eventual sale in the U.S.⁹

The number of maquiladoras dramatically increased in Mexico in the 1980's as the Mexican economy shifted to a near-complete focus on export. With the advent of NAFTA, there was a sharp rise in the number of maquiladoras in the 1990's, with the total reaching over 3000 in the following decade.¹⁰ NAFTA changed the way Mexico treated imports from countries other than the United States and Canada. Under NAFTA rules (specifically Article 303), only raw materials imported from NAFTA countries receive the benefit of no import taxes. Foreign businesses who use Mexican maquiladoras to fabricate products for import into the U.S. do not receive this benefit.¹¹ The number of maquiladora factories stayed relatively stable until the economic downturn in 2008, when many maquiladoras closed and unemployment in the Mexican northern states rose dramatically.¹² In Cd. Juarez, Chihuahua and Tijuana, Baja, two cities with major numbers of export assembly plants, unemployment rose over 21% between 2007 and 2009.¹³ There are indications that the maquiladoras are

⁹ Paul Espinosa (producer), "The Border," Companion website to the PBS documentary series, 1999 <http://www.pbs.org/kpbs/theborder/history/index.html>

¹⁰ M. Angeles Villareal, "U.S.-Mexico Economic Relations: Trends, Issues, and Implications," Congressional Research Service, 24 February, 2011, pg. 9

¹¹ IBID

¹² Courtney Frantz, "U.S.-Mexican Relations Lead the Way in the Hemispheric Race to the Bottom: Maquiladoras, Free Trade, and a Can of Worms," Council on Hemispheric Affairs, 3 October, 2011.

¹³ M. Angeles Villareal, "U.S.-Mexico Economic Relations: Trends, Issues, and Implications," pg 9

slightly rebounding, but these data are difficult to calculate because the Mexican government now combines maquiladoras data along with other manufacture-for-export entities under an umbrella program called IMMEX.¹⁴ In the last decade, China has appeared on the scene as a competitor to the maquiladoras, by significantly undercutting Mexican labor costs, boosting productivity, and providing similar “just in time” delivery costs.¹⁵ Within the last ten years, many businesses have relocated plants from Mexico to Asia. For example, Philips North America shut down a computer screen assembly plant in Juarez and moved the operation to Suzhou, China, and Canon closed an aging inkjet printer factory near the U.S. border and moved its operations to Southeast Asia.¹⁶

This examination of the history and most recent developments concerning the maquiladoras in Mexico highlights the potential future issues facing the United States in relation to this complex adaptive system. Without outside intervention, will the maquiladora industry in northern Mexico fail? Can the resultant massive unemployment and instability along the U.S border be managed? Are there opportunities to influence the future outcome by changing customs and trade policies? Is this truly important to American National Security? The analysis of the primary actors in this system and how their goals and tendencies compare to one another will become the basis of the Problem Frame.

An examination of the key actors and their respective goals and tendencies enables a better understanding of the Mexican maquiladoras as a complex system. By definition, corporations are motivated to increase their profit. U.S. businesses that participate in

¹⁴ IBID

¹⁵ Megan Davy, “What does China’s Growth Portend for Latin America?” American Enterprise Institute for Public Policy Research, AEI online, July 2008, <http://www.aei.org/outlook/28366>

¹⁶ David Bacon, “Anti-Chinese Propaganda Hides a Border Campaign to Cut Wages,” Institute for Global Change, 14 July, 2003, <http://dbacon.igc.org/Mexico/2003antichina.html>

maquiladora relationships do so because it is in their best financial interests. These companies benefit from the low labor costs and the short shipping distances between the northern Mexican states and their facilities in the Southern United States. They invest in Mexican maquiladoras and build “twin” facilities on the U.S. side of the border to facilitate the production process.¹⁷ In the end, the profit margin is the dominant factor, and specific issues concerning stability in the local labor market or security in this region are less influential. For these companies, the tendency is to create business opportunities that are the most profitable. Without any outside influence, they will tend to be drawn to more lucrative ventures, wherever in the world they may be. Mexican corporations are mainly export-focused and are generally supported by an unskilled labor force. This system has been extremely profitable, and there is little motivation for this Mexican industry to change. In fact, although there have been some efforts to shift to the production of high-tech products and domestic goods, the tendency of Mexican industry is to remain centered on the American market.¹⁸ Mexican maquiladoras accept large amounts of foreign investment (mostly from U.S. companies) and are entirely focused on the production of goods for export. Their location along the U.S. border, access to a large labor supply and historical relationships with American companies continue to be profitable. In addition, current Mexican customs and trade policies greatly benefit these companies by reducing or even eliminating tariffs on goods quickly assembled and shipped to the U.S. In the face of serious competition from Asian competitors, Mexican maquiladoras managers have not shifted their focus to other

¹⁷ Paul Espinosa (producer), “The Border,” Companion website to the PBS documentary series, 1999 <http://www.pbs.org/kpbs/theborder/history/index.html>

¹⁸ Public Administration Review 118, “The Global Crisis in Mexico: Challenges and Opportunities,” Mexican National Institute of Public Administration, pg. 218

ventures, but instead reduced already-low wages in an effort to maintain the status quo.¹⁹ Investing in another, unproven model would involve a certain amount of risk. Without outside influence, the tendency of Mexican companies is to continue their current profitable simple-assembly relationships with the United States.

The relevant policy drivers for the United States government are preserving stability along its border, curbing illegal immigration, maintaining a strong domestic economy, and building productive relationships with Mexico.²⁰ It should be immediately noted that these goals can come into conflict with one another. For example, although maintaining a thriving economy entails ensuring that U.S. businesses have the opportunity to engage in deals that are the most lucrative, abandoning current relationships with Mexican factories could negatively affect relations between the two countries. Current initiatives to secure the Southern border and curb illegal immigration might also affect how the U.S. interacts with Mexico in the economic or anti-drug arenas. Mexico's goals are extremely similar to those of the United States. Security and stability along its border, a strong domestic economy, and building strong relations with the U.S. are all high priorities for the Mexican government. Illegal immigration, although a contentious issue for the United States, is not bothersome for Mexico.²¹ Although nearly identical on the surface, the Mexican goals involve different priorities than those of the U.S. For example, a strong domestic economy for Mexico means a continuance of the large amount of remittances from Mexicans in the United States.²² It also concerns focusing its industry on the production of goods for domestic consumption and

¹⁹ Ken Hechtman, "Maquiladora Meltdown," *Montreal Mirror* (online edition), vol. 19, no. 15, October, 2003, <http://www.montrealmirror.com/ARCHIVES/2003/092503/news3.html>

²⁰ United States National Security Strategy 2010, pg. 42

²¹ Federation for American Immigration Reform, "Mexico's Defense of Illegal Immigrants," 2005, http://www.fairus.org/site/PageServer?pagename=iic_immigrationissuecenters_defense

²² Roberto Coronado, "Worker's Remittances to Mexico," *Business Frontier*, Federal Reserve Bank of Dallas, El Paso Branch, Issue 1, 2004, <http://www.dallasfed.org/research/busfront/bus0401.html>

focusing on high-tech indigenous models.²³ For Mexico, “building strong relations” with the United States involves the receipt of assistance, whereas for the U.S., such relations mean increased cooperation on terrorism and illegal immigration.²⁴ The differences in tendencies and goals for the actors in this system will become the center of analysis during the Problem Frame.

The Problem Frame highlights the issues that must be addressed in order to transform current conditions into the desired end state.²⁵ In this case, the desired end state is a more stable economy in the northern Mexican states, free from the current stress brought about by the decline in the maquiladora industry. Since 60% of Mexican maquiladoras operate in the border states, this end state is a key factor in the stability of the border area for both the United States and Mexico.²⁶ Additionally, 80% of all Mexican exports are to the United States, making this relationship extremely important.²⁷ It is in the best interest of these nations to take action to reach this end state. In order to develop future courses of action that create conditions conducive for the desired end state, the current challenges that currently exist in this system must be examined.

The three major challenges to reaching the desired end state are connected to flaws in the Mexican export industry, specifically its inability to respond to global competition, its overreliance on the American market, and its lack of complexity. A fourth challenge is connected to the free flow of labor in this region. These challenges are obstacles in the path

²³ Public Administration Review 118, “The Global Crisis in Mexico: Challenges and Opportunities,” Mexican National Institute of Public Administration, pg. 236

²⁴ United States National Security Strategy 2010, pg. 42

²⁵ FM 5-0 The Operations Process, Headquarters Department of the Army, March 2010, section 3-53, pg 3-10

²⁶ The Trade Promotion Coordinating Committee, United States Department of Commerce, 2008 National Export Strategy, pg. 48

²⁷ United States State Department, Mexico Country Page, <http://www.state.gov/r/pa/ei/bgn/35749.htm>

to a stable and secure northern Mexico. First of all, Mexico's response to increased competition for its maquiladoras has been completely inadequate. Over the past decade, China has presented an attractive alternative to Mexican maquiladoras in terms of labor costs. In 2008, Chinese hourly manufacturing wages were estimated nearly 75% cheaper than those in Mexico.²⁸ For over a decade, Chinese factories have been able to assemble goods of equal quality as the maquiladoras, but now they can provide greater quality control and better physical infrastructure.²⁹ As drug violence continues in Mexico, security has become a greater decision point for businesses as well, and many are concerned that investing in Mexico is a risk.³⁰ Mexico's two main responses to this situation have been extremely inadequate and have not improved the overall situation. The Mexican government's first response was to escalate anti-Chinese rhetoric, even working to delay China's entry into the World Trade Organization.³¹ This merely delayed the inevitable and resolved nothing. Later, driven by the need to compete with China, Mexican factories laid off personnel and cut worker salaries in order to reduce labor costs.³² Considering the weak global economy, this unfortunate move added pressure to an already-stressed workforce. The resultant increases in unemployment and underemployment, combined with reduced salaries, will increase instability in the region as people are driven to crime, either as victims or participants.³³

²⁸ Bureau of Labor Statistics, United States Department of Labor, International Labor Comparisons, Mexico, selected international labor statistics, 2008-10.

²⁹ Daniel H. Rosen, "How China is Eating Mexico's Lunch," *The International Economy*, Spring 2003, pg. 24

³⁰ Adina Moloman, "European Multinational Corporation Risk Concerns," *Made in Mexico, Inc.*, July 23, 2011, <http://www.madeinmexicoinc.com/european-multinational-corporation-risk-concerns/>

³¹ Scott Johnson, "Mexico's China Obsession," *The Daily Beast*, November 2002, [/2002/11/03/mexico-s-china-obsession.html](http://www.thedailybeast.com/2002/11/03/mexico-s-china-obsession.html)

³² David Bacon, "Anti-China Campaign Hides Maquiladora Wage Cuts," *La Prensa San Diego*, February, 2003

³³ Jeff Grabmeier, "Higher Crime Rate Linked to Lower Wages and Unemployment, Study Finds," *Research Communications*, The Ohio State University, April 2002, <http://researchnews.osu.edu/archive/crimwage.htm>

The second major challenge facing the maquiladoras economy of this region concerns the lack of diversity in Mexico's export industry. Mexican industry is so focused on the United States that it ignores potential opportunities elsewhere. Current Mexican custom and trade laws benefit the U.S.-Mexico relationship by eliminating import and export duties on maquiladora-associated raw materials and final products. Being so intricately connected to the U.S. economy has serious drawbacks during economic downturns. As the saying goes, "When the US economy sneezes, Mexico catches a cold."³⁴ Another global economic recession, or an extension of the current one, could create massive problems for the economies of the border states. For example, in 2008 maquiladora closures led to large-scale unemployment in these areas.³⁵ Diversity in Mexico's export industry is further hindered by article 303 of NAFTA, which established tariffs on raw materials imported from non-NAFTA countries but intended for assembly into products to be sold in North America.³⁶ This discourages import relationships with other countries at the same time when increased cooperation with multiple countries is such an important part of globalization. Additionally, because the majority of raw materials used to assemble the final products in the maquiladoras are imported and the final products are exported, the maquiladoras do not stimulate growth in the rest of the economy.³⁷ Although the current model may be extremely profitable, if this industry is supplanted by foreign competitors, there are few options for alternatives with other partners, either foreign or domestic. The Mexican government has recognized the need

³⁴ Elisabeth Malkin, "When the U.S. Sneezes, Mexico Catches a Cold," The New York Times (online edition), 30 December, 2008.

³⁵ Jesus Canas and Robert W. Gilmer, "The Maquila's Changing Geography," Southwest Economy, Federal Reserve Bank of Dallas, 2nd Quarter, 2009, pg. 14

³⁶ The North American Free Trade Agreement, Article 303

³⁷ Gary Gerrefi, "Export-Oriented Growth and Industrial Upgrading: Lessons from the Mexican Apparel Case," Center on Globalization, Governance & Competitiveness, Duke University, January, 2005, pg 1

for its export industry to focus on “domestic chain production,” but this remains an unachieved goal.³⁸

A third challenge associated with this system concerns the lack of complexity of the production performed by the maquiladoras. The vast majority of maquiladoras conduct simple assembly, so the factories involved are tooled for basic production, and the employees only have basic skills. This drastically limits the ability of both the factories and their employees to adjust to new forms of production as the maquiladoras fall to foreign competitors. This industry is so tightly tied to specific customers in the U.S. that a transition to some other form of production would require massive changes in structure and labor. The Mexican government understands this as a problem and seeks to drive the evolution of so-called “first generation” maquiladoras to second and third generation models. The first generation maquiladoras are the least complex and simply assemble raw materials. Foreign investment brings with it technology, and, with this technology, the maquiladoras evolve into more complex factories that eventually focus less on labor intensity and more on more sophisticated products, R&D and even product design.³⁹ Unfortunately, there are few examples of this trend, and many critics complain that the entire concept of the maquiladora “traps developing countries into the deadend role of providing cheap labor for low value-added assembly operations.”⁴⁰

³⁸ Public Administration Review 118, “The Global Crisis in Mexico: Challenges and Opportunities,” Mexican National Institute of Public Administration, pg. 218

³⁹ Jim Gerber and Jorge Carrillo, “Are Baja, California’s Tijuana’s and Mexicali’s Maquiladora Plants Competitive?” Migration Dialogue, University of California Davis, Research and Seminars, 2002, http://migration.ucdavis.edu/rs/more.php?id=4_0_2_0

⁴⁰ Gary Gerrefi, “Export-Oriented Growth and Industrial Upgrading: Lessons from the Mexican Apparel Case,” Center on Globalization, Governance & Competitiveness, Duke University, January, 2005, pg. 1

The final major challenge concerns the current legal framework preventing the free movement of labor across the U.S. Mexican border. Current regulations deny workers in northern Mexico access to employment opportunities in the United States and eliminate a potential “release valve” for the Mexican economy in terms of unemployment. Previously, under the Bracero program, Mexican laborers were allowed temporary entry into the United States in order to find seasonal employment and return to Mexico off-season. Because of a strict U.S. immigration policy, unemployed Mexican workers must either rely on opportunities in Mexico or seek to emigrate to the U.S., legally or illegally.⁴¹ As the maquiladora industry changes in Mexico, potentially leading to increased unemployment or underemployment, the affected workers have few options in terms of finding employment elsewhere in the northern Mexican states.

The Solution Frame takes into account the data gathered in the Environmental Frame, and deals with the issues raised in the Problem Frame in order to develop logical courses of action leading to the desired end state. Considering the history of the system, the goals and tendencies of the actors, and challenges in achieving the desired end state, a logical conclusion can be developed concerning the way forward. In order to mitigate the increasing instability that will arise as the maquiladoras lose their viability under global economic pressures, the United States and Mexico should take decisive preemptive measures. This paper recommends four courses of action in connection with the Mexican maquiladoras industry. These efforts target the root causes of the problem and focus on transforming the maquiladoras into a more effective industry.

⁴¹ Chad Groening, “Illegal Immigration Not a Priority for Presidents,” OneNewsNow.com, March 8, 2011, <http://www.onenewsnow.com/Politics/Default.aspx?id=1307878>

First of all, the United States government must encourage American companies to continue business with Mexican companies in the northern border states in order to guarantee economic stability and help the maquiladoras transform into more complex entities. The President should work with the Secretary of Commerce and the U.S. Trade Representative to develop a program by which U.S. companies are provided fiscal motivation to continue working with Mexican maquiladoras, instead of shifting their assembly operations to Asia. The incentives will most likely be in the form of tax benefits and should be tied to relationships with Mexican maquiladoras that meet strict criteria. Because this is connected to altering the tax code, Congress must pass related legislation. The two most important criteria for the maquiladoras associated with this program are that they pay a living wage to their local employees and that they are engaged in a program designed to increase the complexity of their production. These factories will be able to pay better wages because of the continued investment from U.S. companies who will receive the tax benefit, and these wages will help stabilize the local economy. The U.S. Department of Commerce can assist the Government of Mexico with concrete plans to improve the maquiladoras, in concert with current Mexican goals to revitalize its export industry through increased government financing.⁴² Because the Mexican Government has already come to the realization that the simple assembly model must evolve into something more technologically complex, these plans can quickly be organized.⁴³ In order to effectively advocate this course of action, the

⁴² Public Administration Review 118, "The Global Crisis in Mexico: Challenges and Opportunities," Mexican National Institute of Public Administration, pg. 183

⁴³ John Sargent and Linda Matthews, "China vs. Mexico in the Global EPZ Industry: Maquiladoras, FDI Quality and Plant Mortality," Center for Border Economic Studies, University of Texas Pan-American, January, 2006, pg. 10

focus should be placed on the stimulation of the U.S. economy through tax relief to American companies and the need to preserve a secure environment along the border.

Secondly, the United States, Canada and Mexico should change current trade and customs policies in order to focus on improving the situation in the Mexican northern border states. These three North American partners have previously developed a series of effective measures to improve trade between them, including eliminating tariffs, altering transportation regulations, and streamlining customs rules through NAFTA. This has undoubtedly strengthened ties between these countries but has also driven Mexican companies to continue their focus on the American market. In order to create diversity in the Mexican export industry, especially in the maquiladoras sector, changes or exemptions to current laws should be considered. Specifically, NAFTA article 303 allows maquiladoras to import raw materials from the United States and Canada duty free if the final product is destined for the North American market.⁴⁴ Import tariffs are mandatory for foreign companies that might use Mexican maquiladoras as assembly sites for products to be sold in Canada and the United States. An alteration of this article, or perhaps an exemption for the Northern border region, will stimulate Mexican economic partnerships with other nations and lead to the diversity needed to survive global economic downturns. The U.S. Trade Representative should work closely with his counterparts in Canada and Mexico to revise current regulations in the light of the new international economic situation.

Thirdly, a program designed to improve the skills of the maquiladora employees should be jointly developed by the United States and Mexican departments of Labor. Such a program would be designed to broaden the skill sets of current maquiladora employees and

⁴⁴ The North American Free Trade Agreement, Article 303

other laborers in the northern border states in order to create a stronger technical workforce. These newly-trained employees would aid in the transformation of the maquiladoras industry in two ways. First of all, they would be readily available to contribute to new, more complex production programs as the maquiladoras are transformed into more viable production operations. Secondly, this body of workers would also serve to attract foreign investment from other companies that want to take advantage of lower labor cost, but need skilled employees to conduct their operations. This plan would most likely require funding from the U.S. side but should be included in or modeled after current U.S. efforts to aid Mexico, such as the Economic Support Fund portion of Merida initiative funding.⁴⁵

Finally, the Departments of Labor and Homeland Security should work together to create a new guest worker program to allow temporary workers from Mexico into the United States to pursue seasonal labor opportunities. A guest worker program, perhaps modeled after the Bracero program that was discontinued in 1964, would alleviate the pressure on border state economies by presenting additional employment opportunities in a system where increased unemployment may arise. As the maquiladoras deal with the threat of increased competition from Asia, especially China, these additional opportunities could reduce the strain on the local economies as unemployment and underemployment rise. This also would increase remittances from temporary workers in the United States, contributing to an important part of the Mexican economy. This benefits Mexico in other ways as well, including dissipating "...the political discontent that could arise from higher

⁴⁵ Clare Ribando Seelke, "Mexico: Issues for Congress," Congressional Research Service, 2 September, 2011, pg. 15

unemployment.”⁴⁶ In terms of buy-in from the American people, this could be the hardest course of action to follow. Workers from Mexico are generally viewed as a threat to American jobs, and immigration is also generally viewed in a negative light. This program must be explained as a partnership with Mexico and an opportunity to curb illegal immigration by expanding legal immigration.

For the most part, the counterarguments to taking preemptive steps to mitigate the instability surrounding the deterioration of the maquiladoras industry are based on economic positions. They range from advocating a hands-off free market approach to the refusal to recognize a decline in the industry at all. The first significant counterargument is based on the idea that the current problems that plague the maquiladoras are only temporary and that the industry will recover from the current economic downturn. It is true that the downturn in the global economy had a profound impact on the maquiladora industry and that, as the overall economy rebounded, the maquiladoras have done the same.⁴⁷ It is too soon to determine whether this partial recovery means that the maquiladoras will return to their previous successes, or long term trends toward Asian suppliers will cause a continued decline. For this reason, a concerted effort must be made to understand and help to solve the problem.

Another major counterargument is that the Mexican and U.S. governments should not take any actions to save the maquiladoras industry and that the issues surrounding this industry will be inevitably sorted out by the “free market.” This counterargument is based on the idea that companies will make decisions that are best for them economically and that, in

⁴⁶ Colleen W. Cook, Rebecca G. Rush, and Mark P. Sullivan, “Mexico-US Relations: Issues for Congress,” Congressional Research Service, 23 May, 2008, pg. 10

⁴⁷ Vic Kolenc, “Maquilas Rebound: Growth Drives Industry on Both Sides of Border,” El Paso Times (online edition), 10 March, 2010.

the end, stronger business models will survive and unprofitable ones will fail. There is definite merit to portions of this argument, and certain data indicate that the maquiladoras are slowly shifting away from simple assembly work to more complex manufacturing.⁴⁸ This argument fails, though, as Chinese and Southeast Asian manufacturers quickly shift to complex models as well.⁴⁹ Without the proper incentives, the Mexican export sector will simply not evolve quickly enough to keep up with its Asian competitors. In addition, this argument ignores the critical National Security components associated with a major industrial collapse along the U.S. border.

The most pragmatic counterargument considers the current economy and the need to be frugal with U.S. budgetary resources. The additional resources necessary to fund initiatives to refocus Mexican industry are simply not available in either the United States or Mexico. Additionally, these tough economic times make it difficult to convince American taxpayers that supporting a foreign economy is a sound fiscal choice. Supporters of this counterargument understand the importance of strengthening Mexico's economy but argue that this ranks far below strengthening our own. It certainly cannot be argued that there are considerably fewer funds available today to build stability and spur growth in foreign economies. The weakness of this argument, however, is that it understates critical linkages between the Mexican and U.S. economies. Because maquiladoras production makes up such a large majority of Mexican exports to the United States, the fate of this industry must be a national priority. For this reason, the U.S. government must make the tough choices required to effectively prioritize this issue and to fund it appropriately.

⁴⁸ John Sargent and Linda Matthews, "China vs. Mexico in the Global EPZ Industry: Maquiladoras, FDI Quality and Plant Mortality," Center for Border Economic Studies, University of Texas Pan-American, January, 2006, pg. 10

⁴⁹ IBID

Although there are many issues related to the uncertain future of the Mexican export industry, it is clear that an economic meltdown in northern Mexico would cause national security problems for the United States. As neighbors and key trading partners, the two nations share the need to work together toward collaborative, mutually beneficial solutions. Although this is a complex system, populated by numerous actors with competing goals, it can be broken down into manageable pieces and concrete solutions can be identified. Both governments must demonstrate the political will to invest in the future and work to ensure stability. Doing nothing is simply not an option.

BIBLIOGRAPHY

Bacon, David, *Anti-Chinese Propaganda Hides a Border Campaign to Cut Wages*, Institute for Global Change, 14 July, 2003, <http://dbacon.igc.org/Mexico/2003antichina.html>.

Canas, Jesus and Robert W. Gilmer, *The Maquila's Changing Geography*, Southwest Economy, Federal Reserve Bank of Dallas, 2nd Quarter, 2009.

Cave, Damien, Better Lives for Mexicans Cut Allure of Going North, New York Times (online edition), 6 July, 2011.

Cook, Coleen W., Rebecca G. Rush, and Mark P. Sullivan, *Mexico-US Relations: Issues for Congress*, Congressional Research Service, 23 May, 2008.

Coronado, Robert, *Worker's Remittances to Mexico*, Business Frontier, Federal Reserve Bank of Dallas, El Paso Branch, Issue 1, 2004.

Davy, Megan, *What does China's Growth Portend for Latin America?*, American Enterprise Institute for Public Policy Research, AEI online, July 2008, <http://www.aei.org/outlook/28366>.

Espinosa, Paul (producer), *The Border*, Companion website to the PBS documentary series, 1999 <http://www.pbs.org/kpbs/theborder/history/index.html>.

Frantz, Courtney, U.S.-Mexican Relations Lead the Way in the Hemispheric Race to the Bottom: Maquiladoras, Free Trade, and a Can of Worms, Council on Hemispheric Affairs, October, 2011.

Gerber, Jim and Jorge Carrillo, *Are Baja, California's Tijuana's and Mexicali's Maquiladora Plants Competitive?*, Migration Dialogue, University of California Davis, Research and Seminars, 2002, http://migration.ucdavis.edu/rs/more.php?id=4_0_2_0.

Gerrefi, Gary, *Export-Oriented Growth and Industrial Upgrading: Lessons from the Mexican Apparel Case*, Center on Globalization, Governance & Competitiveness, Duke University, January, 2005.

Grabmeier, Jeff, *Higher Crime Rate Linked to Lower Wages and Unemployment, Study Finds*, Research Communications, The Ohio State University, April 2002, <http://researchnews.osu.edu/archive/crimwage.htm>.

Groening, Chad, *Illegal Immigration Not a Priority for Presidents*, OneNewsNow.com, March 8, 2011, <http://www.onenewsnow.com/Politics/Default.aspx?id=1307878>.

- Hartig, William, *An Introduction to Design (JMO-7)*, Joint Maritime Operations Syllabus, College of Naval Warfare, Naval Command College, August 2011.
- Hechtman, Ken, *Maquiladora Meltdown*, Montreal Mirror (online edition), vol. 19, no. 15, October, 2003,
<http://www.montrealmirror.com/ARCHIVES/2003/092503/news3.html>.
- Johnson, Scott, *Mexico's China Obsession*, The Daily Beast, November 2002,
[/2002/11/03/mexico-s-china-obsession.html](http://2002/11/03/mexico-s-china-obsession.html).
- Kolenc, Vic, *Maquilas rebound: Growth Drives Industry on Both Sides of Border*, El Paso Times (online edition), 10 March, 2010.
- Malkin, Elisabeth, *When the U.S. Sneezes, Mexico Catches a Cold*, The New York Times (online edition), 30 December, 2008.
- Moloman, Adina, *European Multinational Corporation Risk Concerns*, Made in Mexico, Inc., July 23, 2011, <http://www.madeinmexicoinc.com/european-multinational-corporation-risk-concerns/>.
- Raddatz, Martha, "Clinton: Unresolved Economic Crisis Could Destabilize Governments," ABC World News online, 17 February, 2009.
- Riu-Yu, Chang and Yan Luo, *Analysis of Decision-making Behavior Based on Complex Adaptive System*, World Scientific and Engineering Academy and Society, WSEAS Journal, issue 6, volume 7, 2008.
- Rosen, Daniel H., *How China is Eating Mexico's Lunch*, The International Economy, Spring 2003.
- Sargent, John and Linda Matthews, *China vs. Mexico in the Global EPZ Industry: Maquiladoras, FDI Quality and Plant Mortality*, Center for Border Economic Studies, University of Texas Pan-American, January, 2006.
- Seelke, Clare Ribando, *Mexico: Issues for Congress*, Congressional Research Service, 2 September, 2011
- Villareal, M. Angeles, *Mexico's Free Trade Agreements*, Congressional Research Service, 12 July, 2010.
- Villareal, M. Angeles, *U.S.-Mexico Economic Relations: Trends, Issues, and Implications*, Congressional Research Service, 24 February, 2011.
- Bureau of Labor Statistics, *An Overview of the Maquiladora Program*, United States Department of Labor, 1994.

Bureau of Labor Statistics, United States Department of Labor, International Labor Comparisons, Mexico, selected international labor statistics, 2008-10.

Federation for American Immigration Reform, *Mexico's Defense of Illegal Immigrants*, 2005, http://www.fairus.org/site/PageServer?pagename=iic_immigrationissuecenters_defense.

Field Manual (FM) 5-0, *The Operations Process*, Headquarters Department of the Army, March 2010.

The North American Free Trade Agreement, Article 303

Public Administration Review 118, *The Global Crisis in Mexico: Challenges and Opportunities*, Mexican National Institute of Public Administration.

Sandia National Laboratories, CASos (Complex Adaptive Systems of Systems) Engineering Initiative, CASoS homepage, <http://www.sandia.gov/CasosEngineering/index.html>

The Trade Promotion Coordinating Committee, United States Department of Commerce, National Export Strategy, 2008.

The United States National Security Strategy 2010.

The United States State Department, Mexico Country Page, <http://www.state.gov/r/pa/ei/bgn/35749.htm>

World Trade Organization, Trade Review: Mexico, February, 2008.